

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1. (Currently amended) A method comprising:
attempting by a first client to lock a header of a kernel file to prevent simultaneous access by other clients, wherein the kernel file is included in a queue, implemented in a queue data structure, and has one or more slots to accommodate entries in the queue, the header comprising: a count of a number of empty slots in the kernel file, a count of a number of slots in the kernel file that are either being filled or read by a client, a count of a total number of slots in the kernel file, an offset of a first slot that is ready to be read by a client, an offset of a first empty slot, and a queue priority of the first slot;
obtaining by the first client a lock of the kernel file header;
retrieving by the first client a first unread queue entry from one of the slots;
unlocking by the first client the kernel file header; [[and]]
reading processing by the first client the first unread queue entry; and
storing the first unread queue entry at the first client.
2. (Original) The method of claim 1, wherein:
the queue is a time queue;
each queue entry is a message;
each queue entry file is a message file; and
each queue entry has a queue priority, the queue priority being a delivery time of the queue entry message.
3. (Original) The method of claim 1, wherein the queue data structure comprises:
a directory for storing queue entry files; and

a notification file.

4. (Original) The method of claim 3, wherein the directory for storing queue entry files is a message directory.

5. (Cancelled)

6. (Currently amended) The method of claim 1, wherein each slot is the kernel file slots are organized into one of three virtual groups comprising:

a group for empty slots that are empty and ready to receive a message;
a group for unread slots that each contain an unread message waiting to be read processed by a client; and

a group for pending slots that are either being filled by a client or are being read processed by a client.

7. (Original) The method of claim 1, further comprising:
receiving a new queue entry from a client;
storing a new queue entry in the queue in a list of unread queue entries; and
posting a notification in a notification file.

8. (Original) The method of claim 1, wherein the queue data structure is implemented in a file system employing a CIFS protocol.

9. (Original) The method of claim 8, wherein the file system is implemented as a native file system on a fault tolerant, network attached storage (NAS) device.

10. (Original) The method of claim 9, wherein the NAS device is a RAID device.

11. (Currently amended) A method comprising:
locking a header of a kernel file by a first client, wherein the kernel file is included in a time queue and has one or more slots, the header comprising: a count of a number of empty slots in the kernel file, a count of a number of slots being filled or read by a client, a count of a total number of slots in the kernel file, an offset of a first slot that is ready to be read by a client, an offset of a first empty slot, and a queue priority of the first slot;

inserting into one of the slots an entry which is newer than any other entry in the time queue;

unlocking by the first client the header;

changing an attribute of a notification file, thereby waking a second client; [[and]]

locking the header by the second client; [[and]]

reading examining by the second client the entry; and

storing the entry at the second client.

12. (Currently amended) The method of claim 11, further comprising wherein examining by the second client the entry comprises:

retrieving by the second client the entry; and

unlocking the kernel file header; and

processing the entry.

13. (Cancelled)

14. (Original) The method of claim 11, wherein the time queue is implemented in a time queue data structure, which is employed in a file system maintaining files on a fault-tolerant platform, the file system coupled for communication with a network operable to perform file operations requested over the network, the file system providing strictly enforced, network-wide file locks.

15. (Original) The method of claim 14, wherein the clients are in communication with the network.

16. (Currently amended) A computer program product having a computer readable medium having computer program logic recorded thereon comprising:

code for attempting by a first client to lock a header of a kernel file to prevent simultaneous access by other clients, wherein the kernel file is included in a queue, implemented in a queue data structure, and has one or more slots to accommodate entries in the queue, the header comprising: a count of a number of empty slots in the kernel file, a count of a number of slots that are either being filled or read by a client, a count of a total number of slots in the kernel file, an offset of a first slot that is ready to be read by a client, an offset of a first empty slot, and a queue priority of the first slot;

code for obtaining by the first client a lock of the ~~kernel file~~ header;

code for retrieving by the first client a first unread queue entry from one of the slots;

code for unlocking by the first client the ~~kernel file~~ header; [[and]]

code for reading processing by the first client the first unread queue entry; and code for storing the first unread queue entry at the first client.

17. (Cancelled)